WOP-iT®

“the Hardware”

This manual contains a hardware description of the WOP-iT® Panels:

- **WOP-iT® 570**
- **WOP-iT® 1000**

Reg. No. 10465/0702

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Version 1/07.02
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User Manual: WOP-*iT*® "the Hardware"
Edition: 10. July 2002
Author: Zoch

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- Since diskettes represent manipulatable data media, all we can guarantee is that there is no physical damage to them. Liability is limited to replacement.
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Tips for the User

Please read this manual in full before using the software and keep it in a safe place for later use.

Target Group

This manual has been written for users with previous knowledge of PC and automation technology and systems.

Conventions

[KEY]	Keys the user has to press are placed in square brackets , e.g. [CTRL] or [DEL]
`Courier`	Screen output is shown in Courier, e.g. `C:\>`
`Courier bold`	Keyboard entries are printed in Courier bold, e.g. C:\>**`Dir`**
Italics	The names of buttons, menus or other screenelements to be selected as well as product names are printed in *Italics*.

Safety Instructions

Wherever there may be dangerous errors in the automation equipment, i.e., where an error would cause significant property damage or injury to persons if it occurred, additional external precautions must be taken or equipment must be set up (for example by using independent limit switches, mechanical disabling locks, etc.). In the event of an error, these measures must ensure or force a safe operating status.
Testing and verification of suitability for the usage intended by the user, or for deployment under usage conditions, are the responsibility of the user. Systeme Lauer accepts no liability for testing or suitability verification of this kind.

Pictograms

The following pictograms have been used in the manual to identify special text passages:

Danger!
Possibly hazardous situation.
May result in personal injury.

Caution!
Possibly hazardous situation.
May result in damage to property.

Tips and Additional Information

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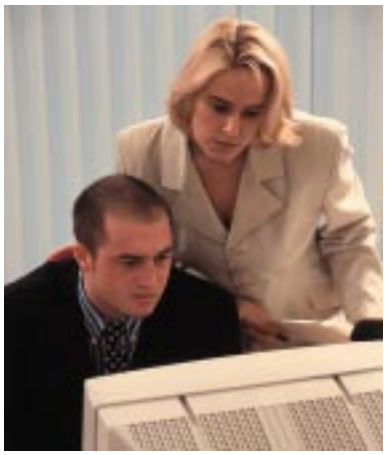
Quality and Support

Nothing is more important in our company than quality. Quality Assurance provides reliable and comprehensive testing from the electronic component to the final product. Quality assurance is based on German and international testing standards (ISO, TÜV, Germanischer Lloyd).

Each device is submitted to a 100% control and long-term testing at changing temperatures (0...50 °C) and test voltage under worst-case conditions for 48 hours – a guarantee for maximum quality.



What makes our products stand out is not only their maximum economy and reliability but also our comprehensive service program.

In addition to your receiving demo devices, we will provide specialists who will support you personally when you use the system for the first time.

For us, qualified user consultation service from expert sales and marketing engineers is a matter of course.
Our support team is ready to offer whatever help you may need.

We offer training and technical courses in our modern training center, or if you prefer it, on your own premises. Ask for our up-to-date training catalog.

From consultation to user support, from our hotline to our service department, from the manual to training sessions, you can count on comprehensive and personalized service surrounding all our products.

We always have time for you whenever you need us: We are dynamic, creative and tremendously efficient. Our experience is that of a worldwide successful company.

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Safety Instructions

These operating instructions contain the most important information required to operate the device safely.

- These operating instructions, and in particular the safety instructions, must be observed by all persons who work with the device.
- In addition, the accident prevention regulations and provisions in force at the site of use must be observed.
- The device may only be installed and operated by staff members with the appropriate background and specialized training.
- Use in accordance with the intended purpose: The device is designed for use in industrial environments.
- The device has been developed and designed in accordance with the state of the art and in compliance with approved safety regulations. Nevertheless, using the device may be hazardous or cause damage to the machine or other property.
- The device complies with the requirements of the EMC Directives and harmonized European standards. Any modification of the system hardware may affect the EMC behavior.
- The device must not be used without special protective devices in EX atmospheres or in systems that require special monitoring.
- Explosion hazard. Do not heat buffer batteries. Serious injury may occur as a consequence.
- The operating voltage of the device should always remain in the specified ranges! More information on this can be found on the type plate.

Standards

Das WOP-iT®-Panel is designed in accordance with state-of-the-art technical developments and conforms to the requirements of the following directives and standards.
The compliance of the specified product with the regulations of the directives 89/ 336 EEC are demonstrated through the adherence to

- Information technology equipment **Radio disturbance characteristics** Limits and methods of measurement
  - Product standard EN 55022

- **Immunity** standard for industrial environments
  - Generic standard EN 61000-6-2

The assembly and connection instructions described in this documentation must be observed.

The CE marking affixed on the device certifies the conformity.
The EC Declaration of Conformity may be requested from:

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EMC-Compliant Installation

Please take the following information into account as early as in the planning stage. This will prevent unnecessary device failures. When installing WOP-*iT*® Panels make sure you observe the connection plan in the manual and the type plate.

- **Here are a few basic rules for an EMC-compliant hardware setup.**

Switching cabinet:

- Do not use fluorescent lamps.
- Suppress interference on the frequency converter by using filter circuits.
- Isolation transformers, which cause magnetic field intensities, must be shielded using a screening plate.
- Ground connections are to be made via a central grounding point. Use a ground conductor with an amply dimensioned cross-section.
- Connect the ground connection and 0 V supply connection via the power supply unit.
- In the case of major interference, ready-made interference filter circuits that precede the power supply unit have proved to be highly effective.

Plug connections and signal lines:

- The best way to divert high-frequency interference is using shielded signal lines grounded on both sides. However, a potential equalization line of at least 10 mm^2 must be laid.
- Only shielded lines are permitted for all signal connections
- All plug-type connectors must be screw-tightened and secured.
- None of the plug-type connections must be routed in the same cable duct as high-voltage lines.

- **Systeme Lauer assume no liability for malfunctions or damage** caused through the use of cables produced by the customer or cables from third-party manufacturers.

- WOP-*iT*® Panels are designed preferentially as cabinet devices and are therefore only equipped with protective measures suitable for this purpose.

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1 Product description

1.1 Operation

1.1.1 WOP-iT® 570

① 5.7" STN display and Resistive Touch

The WOP-*iT*(r) 570 is operated via the Resistive Touch Screen.

1.1.2 WOP-iT® 1000

① 10.4" STN display and Resistive Touch

The WOP-*iT*(r) 1000 is operated via the Resistive Touch Screen.

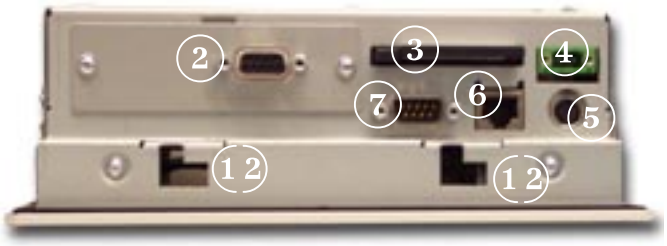
Note!
No hard objects should be used when operating the Touch system, since they could cause scratches on the surface!

1 Product description

1.2 Slots

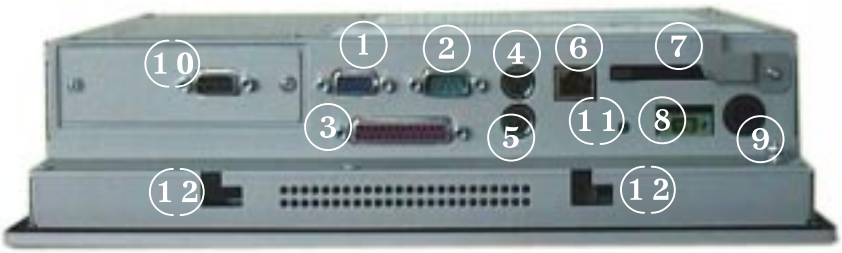
1.2.1 WOP-iT® 570

② Module - Interface
Plug type is dependent
on the bus module installed)
③ Compact FLASH slot
④ 24 V power supply
⑤ Serial I/O interface
⑥ Ethernet
⑦ COM 1 (RS232)
⑫ Opening for mounting blocks



1.2.2 WOP-iT® 1000

① VGA
② COM 1
③ Parallel port
④ PS/2 for keyboard
⑤ PS/2 for mouse
⑥ Ethernet port
⑦ Compact FLASH slot
⑧ 24V power supply
⑨ Circuit breaker
⑩ Module interface
⑪ Hardware reset
⑫ Opening for mounting blocks



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1 Product description

1.3 Rear Side

1.3.1 WOP-iT® 570

⑧ Ethernet LEDs
⑨ BUS LEDs
(dependent on the bus module)
⑩ Grounding screw
(screen-grounding)

1.3.2 WOP-iT® 1000

① Ethernet LEDs
② LED for Compact FLASH access
③ Bus LEDs
(dependent on the bus module)

1 Product description

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2 Putting the System into Operation

2.1 Power supply

Caution!
The WOP-*iT*® 1000 may only be operated with a safe extra-low voltage according to EN60950!

The control transformer must comply with EN60742!
Check the supply voltage and make sure it corresponds to that specified on the type label.

Check that all cables are correctly connected before putting the system into operation.

Make sure that all voltages and signals correspond to the applicable specifications.

Power supply: WOP-*iT*® 1000

④ 24 V power supply

Safe electrical isolation of extra-low voltage is to be assured for the 24 V power supply. Only use power supply units that are manufactured in compliance with IEC 364-4-41!
The supply of power to the WOP-*iT*® 1000 takes place via a two-pin plug-type connector (Phoenix MST BT 2.5/02 - STF - 5.08) on the angled bottom of the unit.

2.2 Ground Connection

Connect the ground connector of the control unit to the cabinet ground. Use a conductor cross-section of ≥ 2.5 mm².

2 Putting the System into Operation

2.3 Installation of the Unit

Installation

The unit is to be installed in an RF-radiation-proof housing or a metal switching cabinet.
To ensure the heat generated in the unit can be carried off into the environment, a ventilation area of 50 mm around the unit needs to be maintained.

Six mounting blocks are used for the installation.

Caution!
Take care not to damage the unit!
Front-side protection type IP65 can only be guaranteed when the front-panel seal is correctly fitted.
When installed make sure a ventilation area of 50 mm is maintained around the unit.

2.4 Switching On the Device

Startup

After switching on the power, the WOP-*iT*® 1000 boots automatically and loads the operating system VxWorks and Java Virtual Machine and the user interface.

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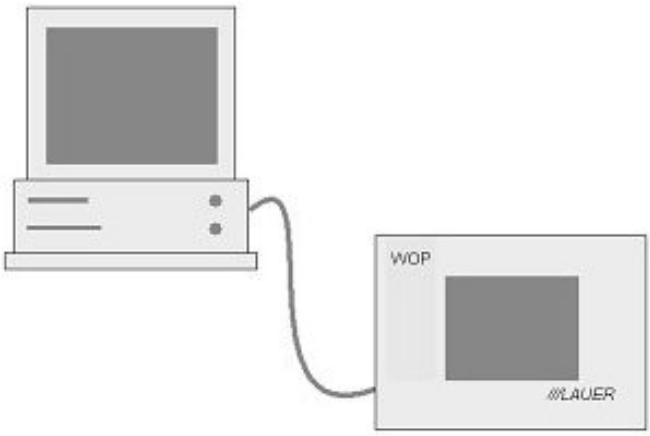
3 Getting Started

Basic Requirements

The connection between the project planning computer and the WOP-*iT*®device is implemented via the TCP/IP protocol.

In the simplest scenario, users are connected directly via the network terminals (RJ 45 ports) using a standard yellow cross-patch cable.

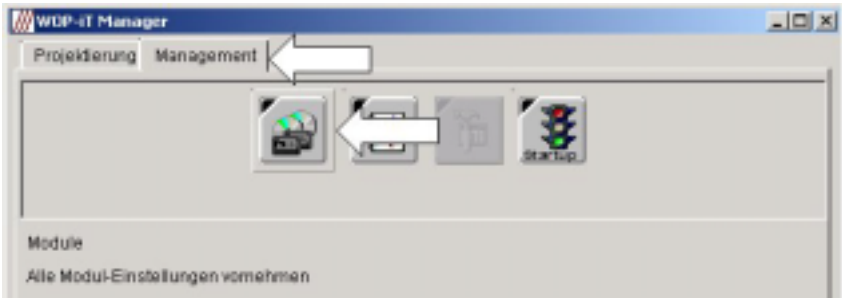


3.1 STEP 1 - Enabling Bundles

*I have a WOP-*iT® *Panel and a* ***WOPkeys diskette*** *and I want to enable the* ***bundles****. What do I have to do?*

To take full advantage of the features of the WOP-*iT*® Panel as a runtime client and runtime server, and to have access to the full designer version, you need to enable the bundles in WOP® Manager to your computer using a software key.

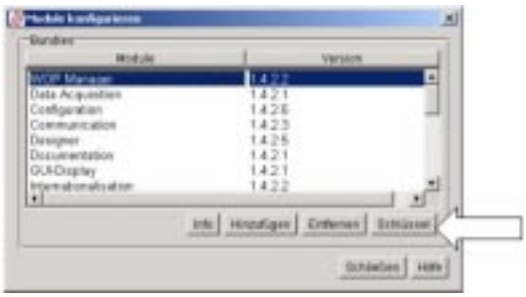
1) Management (ρ) module



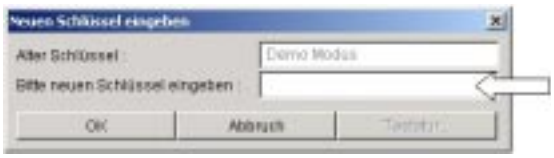
2) Entering the WOP Manager keys
WOPKeys.txt on your diskette:

wmgr/editor:	Only the runtime client function is enabled.
wmgr/runtime:	Runtime client and runtime server functions are enabled.
dgnr/runtime:	Full designer version (limited to 45 minutes project planning time in the demo version)

→ To enable the functions of the WOP-*iT* as a runtime client and runtime server, select *WOP Manager* and click *Key*:

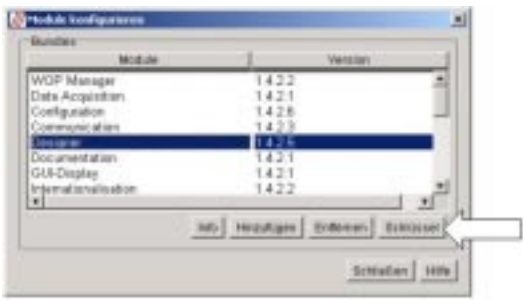


→ Insert the **wmgr/runtime** key from your **diskette** using [Ctrl + C] and [Ctrl + V]:



3) Entering the designer key

→ To enable the full-version functions of the WOP-*iT* Designer, select *Designer* and click *Key:*



→ Insert the **dgnr/runtime** key from your **diskette** using [Ctrl + C] and [Ctrl + V].

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3 Getting Started

3.2 STEP 2 - WOP-iT Demo CD

Demo projects are located on the Designer CD in the „Demo_Projects“ directory. How can I transfer these from the CD to the WOP Manager (and in the steps following this to the ***WOP****-*iT *Panel?).*

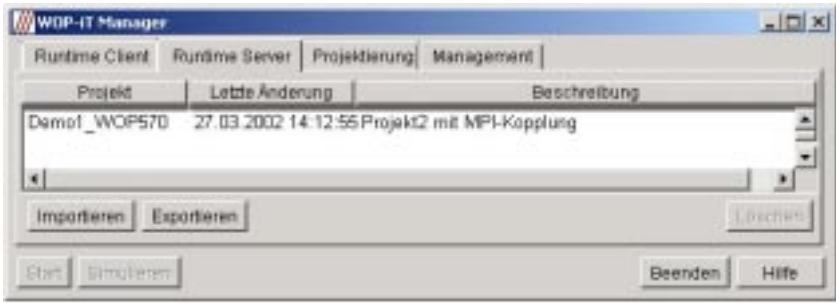
In general, a WOP-*iT* project consists of the <project name>.wop file and the <project name> folder.
Example:

These 2 project modules belong together and need to be located in the same directory!

In order to access the *Demo1_WOP570 project* in WOP Manager, the folder and project file have to be copied to the *projects* directory in your installed version of WOP-*iT*.

Please note:
Files and directories remain write-protected when copied from the CD. Disable the write protection where necessary!

After copying to the *projects* directory:



3 Getting Started

3.3 STEP 3 - Enabling Ethernet

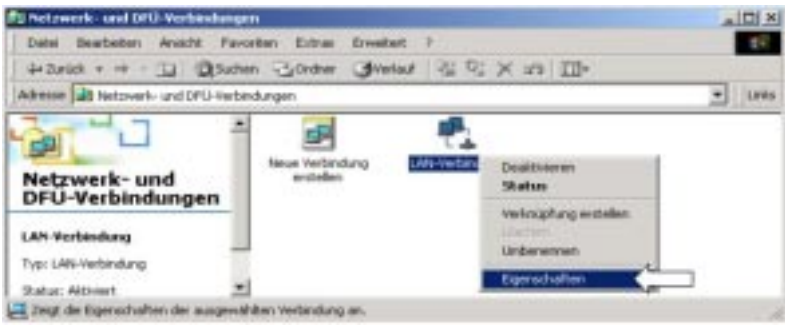
Although the project is now available in WOP Manager, it is still not available on the WOP-iT Panel. How do I transfer the project from the Manager to WOP-iT?

First, you need to connect to the **WOP-*iT*** via Ethernet.
The transfer of projects from your computer to the WOP-iT Panel is implemented via Ethernet using the TCP/IP protocol. Users are addressed via addresses when using Ethernet. Each user needs to be allocated a unique address. This address may only be assigned once in the network. Users can only communicate with one another when they are in the same network.

1) Example configuration of the computer under **Windows 2000**

→ Click on the icon with a ring around it in the Control Panel.

Select *LAN Connection* and then right-click *Properties*.



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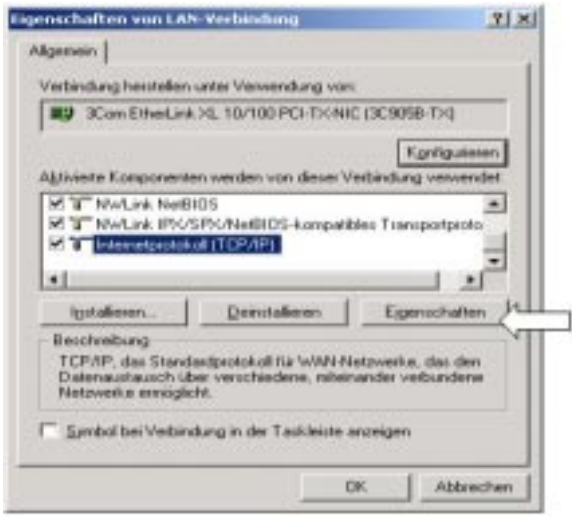


If TCP/IP is not activated, it needs to be installed by clicking *Install*. (Contact your system administrator for support).

If TCP/IP is activated, click *Properties*.
Below is an example of an IP configuration typical to a company:

2) Configuration of the WOP-iT Panel
Click the hammer button on the *Management* tab.

Enter the IP configuration of the WOP-iT Panel on the *Ethernet* tab, e.g.:

IP:	192.168.5.131
SubnetMask:	255.255.254.0
	(same SubnetMask as your computer)

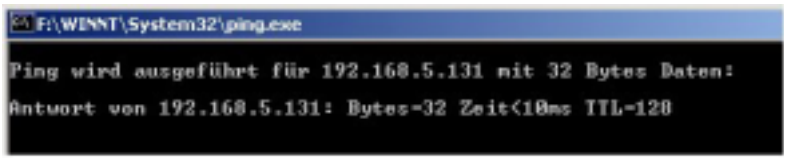
3) Testing the physical connection between your computer and the WOP-iT Panel

The *ping command* is suitable for testing the connection. This command sends a data packet to the user addressed. If a physical connection exists, the user addressed answers and sends the data packet back to the addresser.

The command in our case would be as follows:

Enter the following under *Start* → *Run*:
ping 192.168.5.131.

If a physical connection occurs, the following message box appears: (answer arrives 4 times by default)


F:\WINNT\System32\ping.exe
Ping wird ausgeführt für 192.168.5.131 mit 32 Bytes Daten:
Antwort von 192.168.5.131: Bytes=32 Zeit<10ms TTL=128

If the physical connection fails, the following message box appears: (answer arrives 4 times by default)

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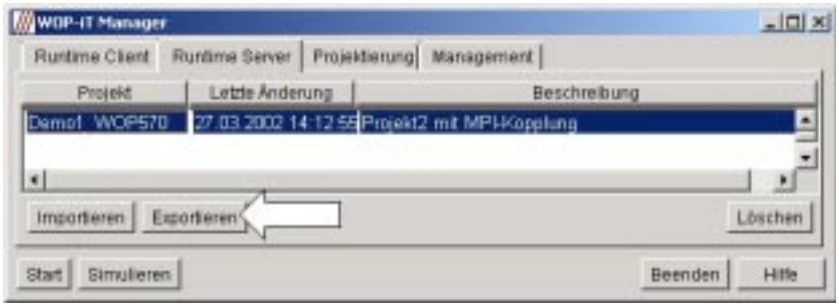
3.4 STEP 4 - Transfer

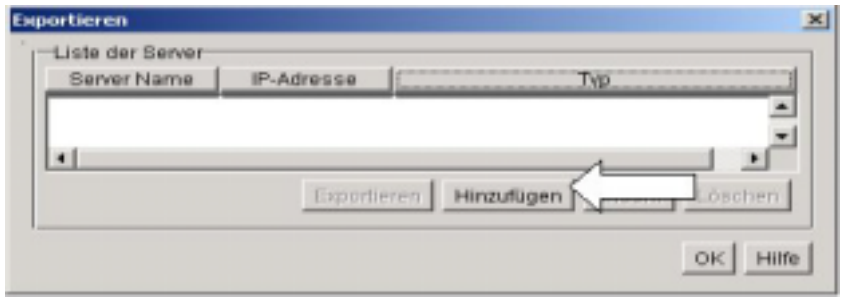
The project is now in WOP Manager and I have managed to set up an Ethernet connection. Now I need to make a transfer to the ***WOP****-*iT *Panel.*

Select the project and click *Export*.

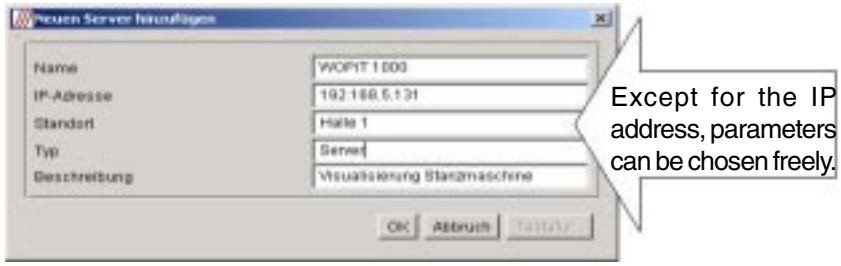


Confirm the project by selecting it again and clicking [OK].

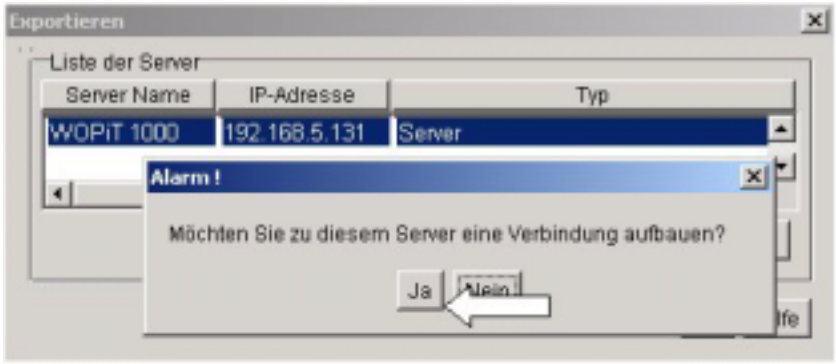
To specify the WOP-*iT* Panel to which you want to transfer your project simply click *Add*.



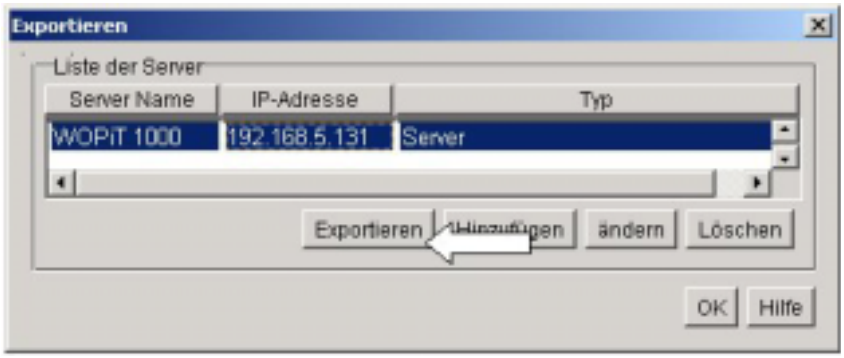
Enter the parameters for your WOP-*iT* Panel and click [OK].



Select the newly added server and click [OK] to confirm the dialogue box that appears.



Once the physical connection has been established and data transfer is possible, the *Export* button that was previously grey will turn black, i.e. transfer to the WOP-*iT* Panel can be started by clicking *Export*.



The following message which you will need to confirm will appear once project transfer is complete.

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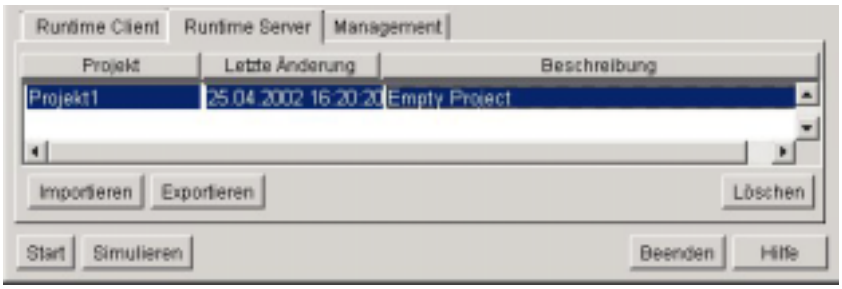
3 Getting Started

3.5 STEP 5 - Start/Simulation

Following the transfer procedure, your project is located on the *Runtime Server* tab. Briefly display a different tab if the runtime server tab needs to be refreshed.



The server mode functions of the WOP-*iT*® Panel are contained on the *Runtime Server* tab. Via this tab, projects can be imported from other panels or computers or exported to other panels or computers. Projects can also be deleted.
Click *Start* to launch drivers or set up a connection to a PLC. Click *Simulate* to perform a simulation without launching any drivers or setting up a connection.

3 Getting Started

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4 WOP-*iT*® Manager

The WOP-*iT*(r) Manager is a tool for:

- Full project management of the WOP-*iT*® Panel
- Performing basic settings for getting started
- Using the Panels

After starting the WOP-*iT*® Panel and the WOP-*iT*®designer software, the WOP-*iT*(r) Manager is started by default.
The following information refers to the WOP-*iT*® Manager on your Panel.

The main functions in the WOP-*iT*® Manager:

- Starting applications as a client
- Starting applications as a server
- Definition of basic settings

4.1 “Management” Tab

The settings for the following functions are defined on the **“Management”** tab.

1.) Startup behaviour

2.) Settings (specific to the hardware)

3.) Logging function

4.) Administering modules (“bundles”)

4 WOP-*iT*® Manager

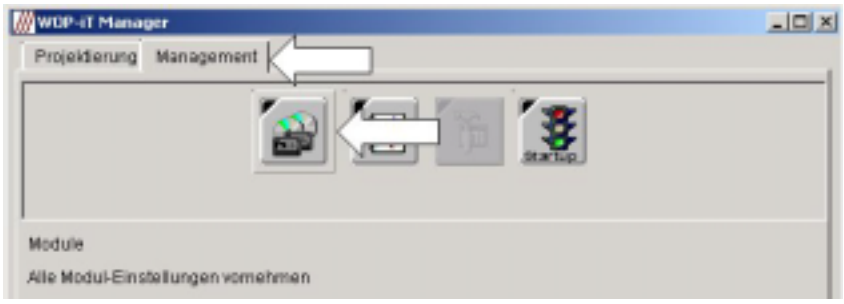
4.1.1 Modules (bundles)

A list of available **"modules"** (bundles) is displayed here. Bundles are function modules that can be installed ("Add"), deleted ("Remove") or licensed ("Key"). Furthermore, information is available on those bundles selected under "About".

Licensing Bundles

To take full advantage of the features of the WOP-*iT*® Panel as a runtime client and runtime server, and to have access to the full designer version, you need to enable the bundles in WOP® Manager to your computer using a software key.

1) Management → Module



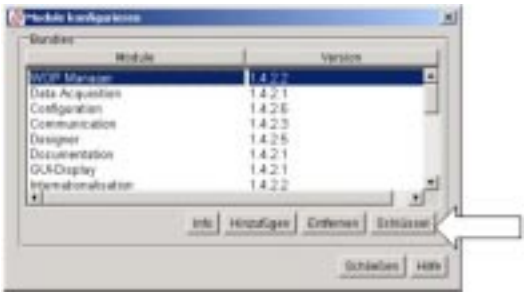
2) Entering the WOP-iT® Manager Keys WOPKeys.txt on your diskette:

wmgr/editor: Only the runtime client function is enabled.

wmgr/runtime: Runtime client and runtime server functions are enabled.

dgnr/runtime: Full designer version (limited to 45 minutes project planning time in the demo version)

→ To enable the functions of the WOP-*iT* as a runtime client and runtime server, select *WOP Manager* and click *Key*:



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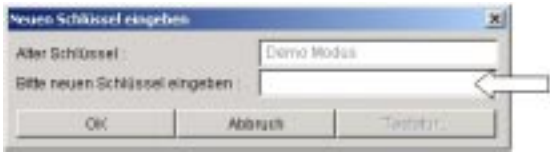
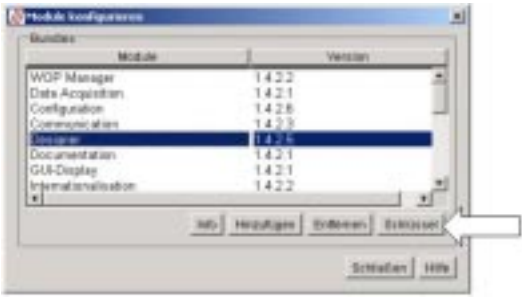
→ Insert the **wmgr/runtime** key from your **diskette** using [Ctrl + C] and [Ctrl + V]:



3) Entering the Designer Key

→ To enable the full-version functions of the WOP-*iT* Designer, select *Designer* and click *Key:*



→ Insert the **dgnr/runtime** key from your **diskette** using [Ctrl + C] and [Ctrl + V].

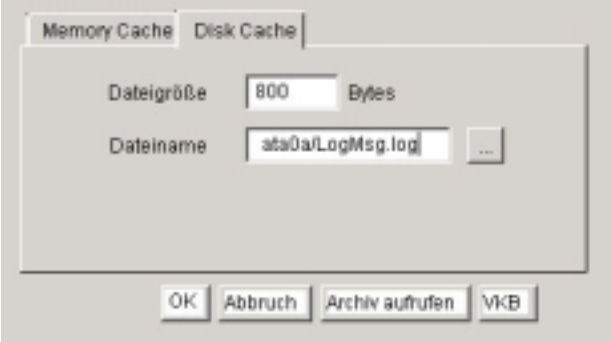
4.1.2 Logging

The **Logging** function logs the start sequence of the program as well as error and system messages.

"Memory Cache" Tab

On this tab, settings are made to specify how many messages are to be stored in the main memory (memory cache) until they are written to a log file (refer to "Disk Cache" Tab) or the time period before they are written to the log file. Using logging data, the processes (such as: which user logged on when) in WOP-*iT*(r) Manager can be traced.

"Disk Cache" Tab



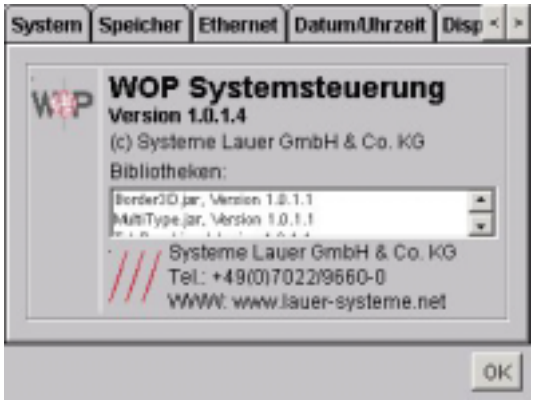
In general, 2 log files are created by the system. These can be defined and configured on this tab. "LogMsg" is suggested as the default file name. The "LogMsg1" and "LogMsg2" files are then created (extension of the file name entered by the numerals "1" and "2") which have a predefined maximum size of 800 byte.

How the log files work (specific to the default settings):
When the 9th message arrives or the messages are older than 30 minutes, they are written to "LogMsg1". This process is repeated until the maximum file size of 800 byte has been reached. The messages that appear next are then written to "LogMsg2" until this file reaches a maximum size of 800 byte. If the maximum file size is exceeded, the messages are written to "LogMsg1" again (the data in the file are deleted prior to this).

Click "Access archive" to view the logged entries in the files.

4.1.3 Settings (Hardware)

The settings for the WOP-*iT*(r) hardware take place in a transparently structured application called **WOP-*iT*(r) Control Panel**. This programme also provides detailed device information. Click "Settings" in WOP-*iT*(r) Manager to activate this application.
Start the Control Panel on the **"About..." tab,** where information such as the current WOP-*iT*® Control Panel version number is displayed.



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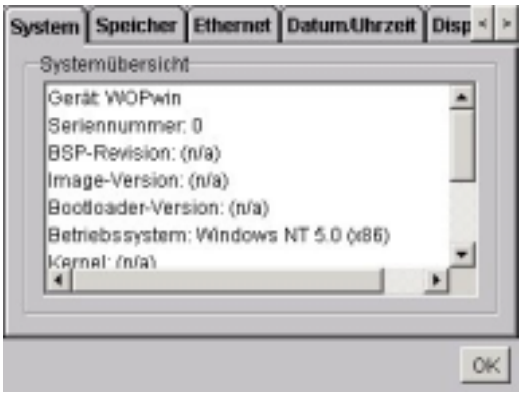
4 WOP-*iT*® Manager

The following contains a detailed description of the individual cards specific to the WOP-*iT*® Control Panel.

4.1.3.1 System



The “System” tab provides a summary of useful system information in the form of a list.

Device:
Complete designation of the WOP-*iT*® device (see also type plate on the device).

Serial number:
Serial number of the device (see also type plate on the device).

BSP revision:
This value specifies the current BSP (Board Support Package) revision number. Since the Board Support Package represents the adaptation of an operating system to the respective hardware (and is thus platform-dependent), the value indicated here is optional.

Image version:
The WOP-*iT*® image includes the operating system among other things. This value indicates the current version of the image.

Bootloader version:
The bootloader comprises the start mechanism for a WOP-*iT*®. Among other things, it initialises the hardware and loads the operating system. The value displayed is the current bootloader version.

Operating system:
Indicates the WOP-*iT*® operating system and version. The value in brackets indicates the WOP-*iT*® CPU family of processors on which the operating system is executed.

Kernel:
Indicates the current version of the operating system kernel. This value is dependent on the operating system used.

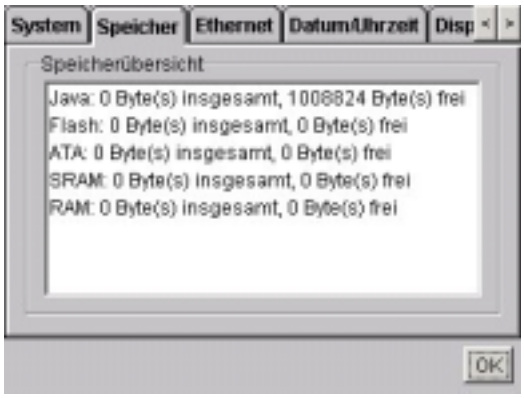
Module type:
If a communication module is present, this value indicates the type of module. More information on the module can be found on a separate tab (see **Bus Module**).

Operating hours counter:
The operating hours counter indicates the total operating time for the WOP-*iT*® in hours.

JNI version (operating system):
The JNI (Java Native Interface) comprises an interface between a Java application and the operating system. This value indicates the current version of the JNI implementation on the operating system side. It is platform-dependent.

JNI version (Java):
This value indicates the current version of the JNI implementation on the Java side. It is platform-independent. It guarantees the compatible connection of a Java application to the WOP-*iT*® hardware and its operating system, without having to create the respective application anew for different platforms.

4.1.3.2 Memory



The *Memory* tab indicates all the memory types for a WOP-*iT*® including information on total and free storage space available. If a memory type is not available, or the memory size cannot be displayed, a default value of -1 is displayed.

Java:
Indicates the total memory space assigned to the Java VM (Virtual Machine) and the memory space available for Java applications. Please note: The Java memory is a subarea of the RAM.

Flash:
Indicates the total as well as the still available memory space of the integrated Flash memory. The Flash memory (or Flash disk) is the internal storage medium for the WOP-*iT*® on which all system and user files are saved via a file system and which are retained even after the system has been shut down. The Flash disk is suitable for saving static files because it only permits a limited number of write cycles.

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ATA:

WOP-*iT*®s with integrated ATA drives allow the use of an ATA disk card which (like the internal Flash disk) is available as an additional drive and retains data without power being supplied. An ATA disk card can also be addressed via the file system and be used for saving files if the storage space of the internal Flash disk proves insufficient. The value displayed here indicates the total and the still available storage space of the ATA disk card used. (Only projects are saved on the "ATA disk" in the case of the WOP-*iT*® 1000.

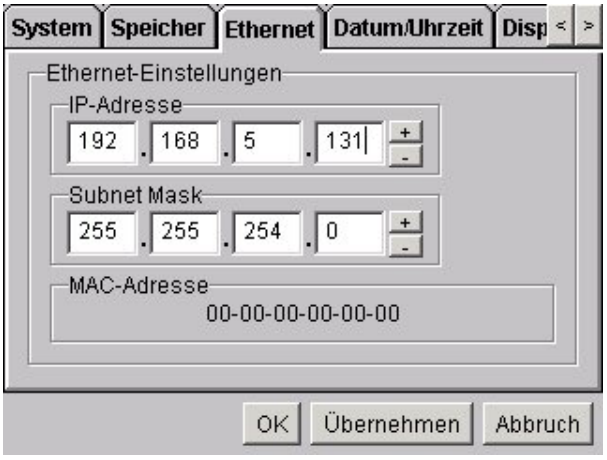
SRAM:

The SRAM (Static Random Access Memory) is a fast memory specially suitable for saving temporary or self-modifying data (e.g. configuration or log files), since, in contrast to the Flash disk, it supports any desired number of write cycles. As with the Flash and ATA disk, the SRAM can be addressed via the file system. It is battery-buffered and as such retains its data without external power supply. The value displayed indicates the total memory space and the still available memory space of the SRAM.

RAM:

The RAM (Random Access Memory) is the main memory of the WOP-*iT*(r). It is used by both the operating system and the Java Virtual Machine (JVM). The total memory space and the memory space still available are indicated. The size of the used memory space (total memory space minus free memory space) also includes, among other things, the value of the memory space assigned to the JVM.

4.1.3.3 Ethernet



The current and network-specific settings can be viewed or modified under *Ethernet*.

IP address:

The current address of the WOP-*iT*® via which it is address in the network is shown here. The value range for each address field is between 0 and 255. An automatic jump takes place from 255 to 0 (+ key) or from 0 to 255 (– key).

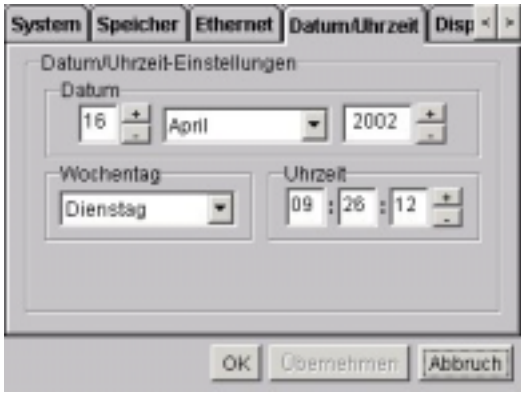
Click “Accept” to activate the IP address immediately. A restart is not necessary.

Subnet Mask:

The subnet mask can be entered here. This is a special bit mask for defining the size of a network. The value range for each address field is between 0 and 255. An automatic jump takes place from 255 to 0 (+ key) or from 0 to 255 (– key). Click “Accept” to activate the IP address immediately. A restart is not necessary.

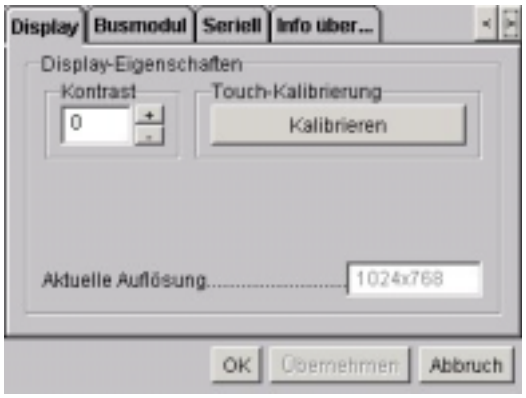
MAC address: The globally unique identifier of the Ethernet module hard-coded in the hardware is displayed in the MAC address field (also referred to as the Ethernet address).

4.1.3.4 Date/Time



The current system time or date can be viewed and set under *Date/Time*.

4.1.3.5 Display



On this tab, all the settings specific to the *display* and touch are shown and can be modified.

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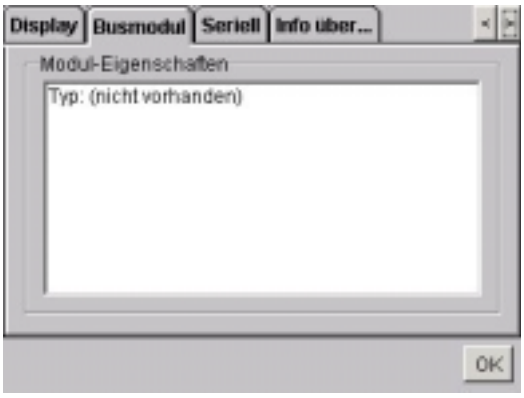
Contrast:
The display contrast can be adjusted with this setting. The higher the value, the higher the contrast and therefore the darker the image. The value range for the contrast is between 0 and 255. The set value is accepted without confirmation.

Touch calibration:
Click the calibration button to access a Touch-Screen calibration tool for adjusting the touch screen to ensure exact positioning of the pointer when the screen is touched. The tool provides 7 calibration points which are displayed in sequence in the form of green crosshairs. To perform calibration, carefully touch the cross point of the crosshairs with a pointed but soft object (Touch pen). After you have calibrated all the reference points correctly, the system reboots and the modified calibration data are automatically carried over to the system.

Current resolution:
The current resolution of the WOP-*iT*® display is indicated in pixels.

4.1.3.6 Bus Module



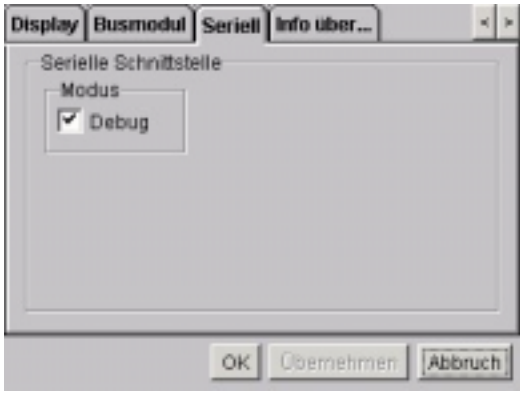
The *Bus module* tab provides detailed information on any bus module connected.

Type:
Indicates the type of bus module connected.

Firmware:
Indicates the firmware version and type for the module connected.

Communication:
The type of the internal communication between the module and the WOP-*iT*® is specified here.

4.1.3.7 Serial



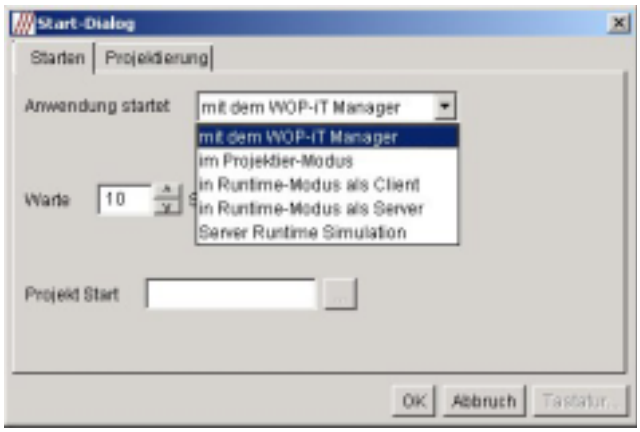
The *Serial* tab is used for viewing and modifying the parameters of the first serial interface (COM 1) of the WOP-*iT*®.

Mode:

COM 1 can be used as a debug interface. This option determines whether debug output is permitted via COM 1 or not.

4.1.4 StartUp

The behaviour on starting the WOP-*iT*® Panel is defined in the StartUp settings.



By default, the Panel launches WOP-*iT*® Manager upon startup.
If the resolution of the WOP-*iT*® Panel permits (and in principle it is of use), startup in project mode is also possible (provided this makes sense at all).

If you select “Runtime mode as client”, the application will automatically be started as a client and a connection to a server is established when the programme is loaded. The name of the server has to be entered for this process.

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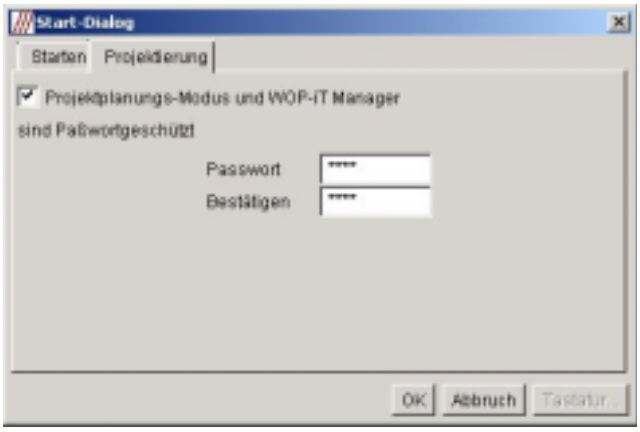
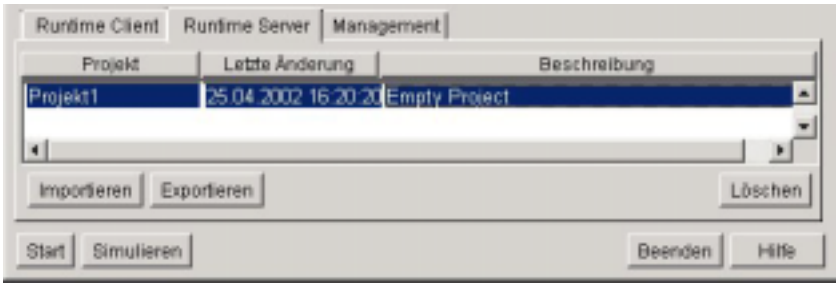
4 WOP-*iT*® Manager

If an application is to be start automatically as a server when the programme is loaded, select “Runtime mode as server” and enter the desired project. To be able to start again with WOP-*iT*® Manager when one of the above settings were selected, a time interval (at least 1 second) can be defined in the bottom input field, during which automatic startup can be aborted and a return to WOP-*iT*® Manager is possible.
It is also possible to start with the “Server runtime simulation”.

On the “Project planning” tab, password protection can be set up for returning to WOP-*iT*® Manager and for the project planning mode.

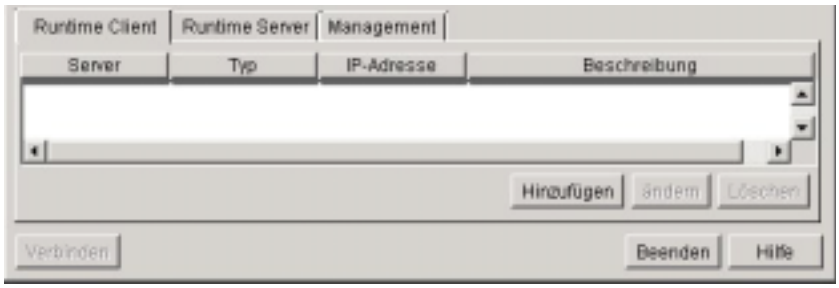


4.2 “Runtime Server” Tab

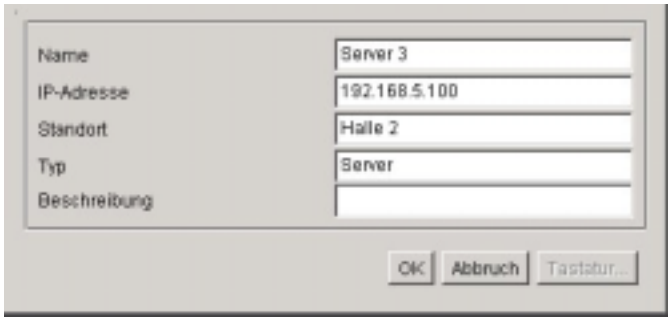


The server mode functions of the WOP-*iT*® Panel are contained on the *Runtime Server* tab. Via this tab, projects can be imported from other panels or computers or exported to other panels or computers. Projects can also be deleted.
Click *Start* to launch drivers or set up a connection to a PLC. Click *Simulate* to perform a simulation without launching any drivers or setting up a connection.

4.3 "RunTime Client" Tab



The client mode functions of the WOP-*iT*® Panel are contained on the *Runtime Client* tab. Via this tab you can log on to a server by clicking *Connect*.
The *Add*, *Change* and *Delete* buttons can be used to define, set up and delete various servers.



All the fields except for *Description* are mandatory fields but can be freely defined apart from the IP address.

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5 The First Project

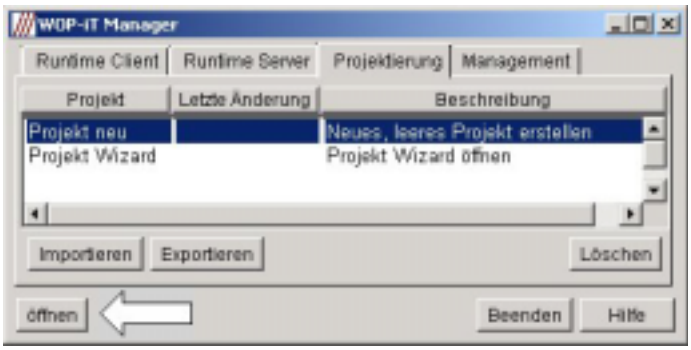
The following first project has been conceived to provide you with a quick introduction to WOP-*iT*®-related topics.
For detailed information, please read the appropriate chapters in the software manual.

What do you want to achieve?

Having read this chapter, you will able to create pages, position GUI elements on the pages, integrate drivers, set up variables, link GUI elements and variables, and trigger and display messages.

So, let's move on to the first project.

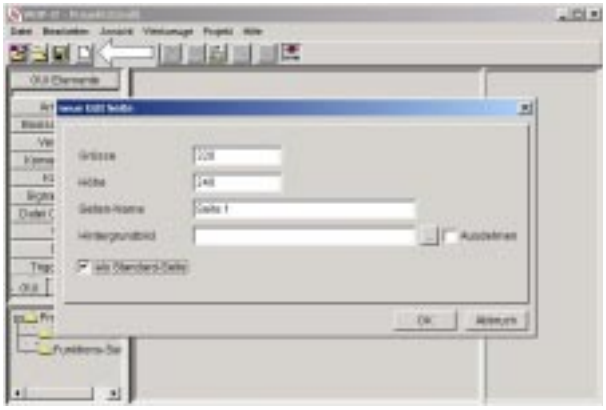
Click the WOP-*iT*® icon on your Desktop to start *WOP-iT*® Manager. On the *Project planning* tab, select *New project* and click *Open*:



You are now in WOP-*iT*® Designer and can start with project planning.

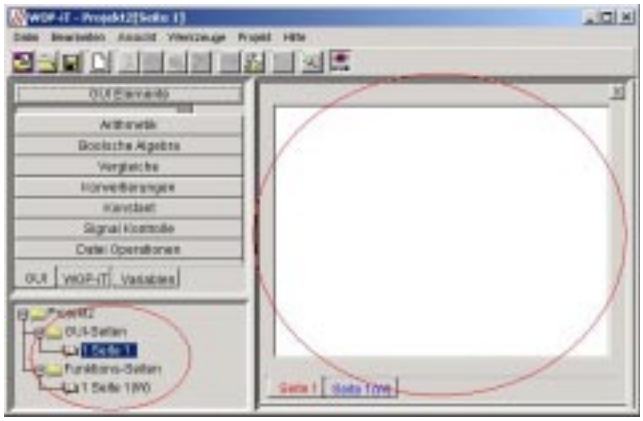
5.1 New Page

First, you need to create a new page.



Make sure a tick is set for *As standard page* (→ definition of the start page and one-time definition of the page resolution).

5 The First Project



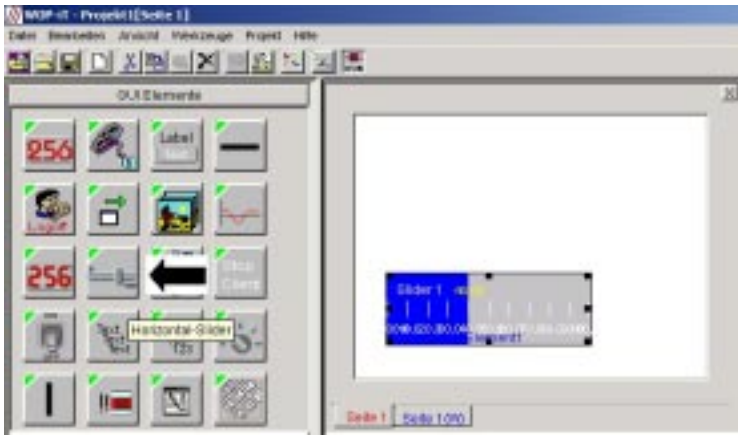
You will be able to se the start page you have set up on the bottom left-hand side. This is divided up into a GUI page and a function page.

- GUI page (**G**raphical **U**ser **I**nterface page):
  Page for all the visualisation elements visible to the user, such a sliders or buttons.
- Function page (with index “W” = Worksheet):
  Page for variable links as well as for all logical and arithmetic operations via WOP*iT* elements.

Double-click on a page to access it for editing.

5.2 Adding GUI Elements

All the GUI elements are grouped in the top-left part of the designer area. Click on the *Horizontal Slider* element. Following this, switch to page 1 (with a red background) and, holding the left mouse button down, pull the slider to adjust it to the required size. You can also move and zoom out/in other elements as desired.



You then add the following elements in the same manner: *Rotary Switch*, *Page Switch Control* (to switch to a another page) and *Log Off User* (to be able to stop a simulation). You should arrive at the following or similar results.

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5 The First Project

After you have positioned the 4 GUI elements, you will need to establish a functional connection between them, e.g. the slider value is to be assigned to the *Rotary Switch* via a variable. The following needs to be pointed out:

! In general, GUI elements such as a *Switch* or a *Rotary Switch* can be used as active components (i.e. as an actual switch or rotary switch) or as passive components (as mere indicators).

Since you will want to view messages later on, a GUI element *View Messages* has been provided. It is recommendable to positioned it on a separate page.

To do this, create a new page (e.g. *Messages*) and insert this GUI element. The GUI element *View Messages* is a graphic stand-in for administrating messages at runtime, i.e. changes to the size of a column cannot be made.

To be able to return to page 1 later on, add another *Page Switch Control* element to the page. The 2 page switch buttons on *page 1* and *Messages* still need to be configured. Example of the message page:

In the properties of the GUI element *Page Switch Control*, enter the name of the button and the page to which you want to switch. Use the same method for page 1.

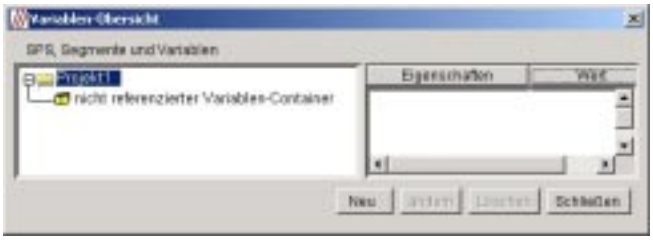
5 The First Project

5.3 Creating Variables

Switch to the *Variables Editor* to create variables.

! In general, the Variables Editor is made up of two parts. If you want to create variables which are not to be used for data exchange between your PLC and your Panel, store these in the *non-referenced variables container*.

Variables that are to be used for data exchange between your PLC and your Panel need to be embedded in a driver.



Now we will set up a driver and a PLC. (Your project, of course, can be simulated without a PLC connected.)
Right-click *Project1* = Project name specific to the screenshot above. Select *Configure driver* in the dialogue menu that opens. The following dialogue box will be displayed:

Here, you have to select the *MPI* driver, for example, and click the central *Add* button. The driver being used is now dispplyed beneath *Use*. Select and click *Settings* to modify the default settings for the driver.

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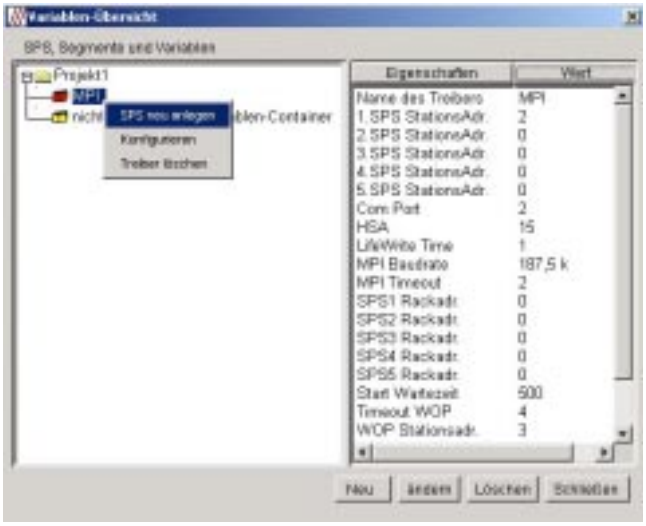
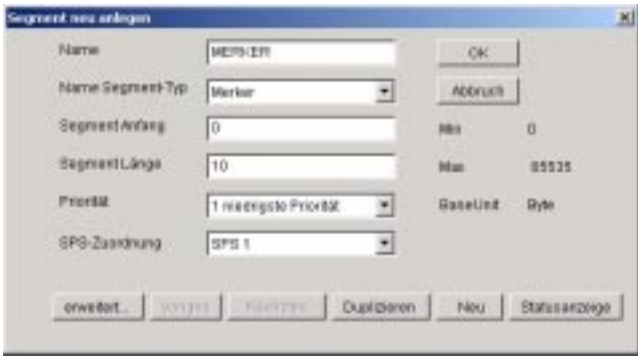
The Variables Editor now has the following appearance:



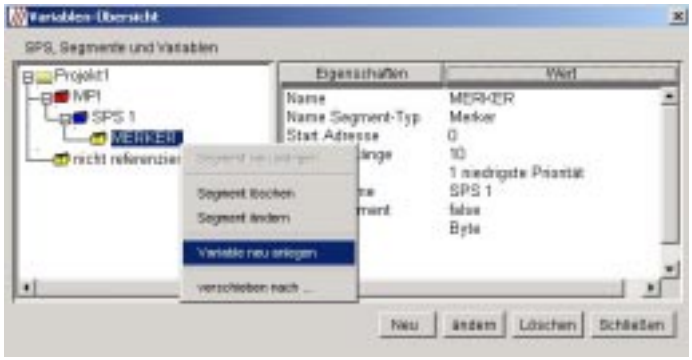
Right-click *MPI* to define a PLC. The default setting for the station address of the 1st PLC created is 2, with the address of the Panel being 3.

→ More information on each of the drivers can be found in the driver manual.

Right-click *PLC 1* to create a segment. Name this variable *FLAG*, for example, since we will want to create a flag variable later on. The length of the segment should be fixed to 10 bytes, i.e. we can use the flag byte 0 to 9.



! Segments map the various memory spaces of the PLC, e.g. flags, inputs, outputs, ... → More information on this topic can be found in chapter 4 of the software manual.



Right-click the “FLAG” segment to create the following variable:

The WOP-*iT* data type means that the variable is 1 byte in size. Offset 0 means that the variable is at address 0 in relation to the beginning of the FLAG segment, i.e. we have mapped the PLC flag byte 0.

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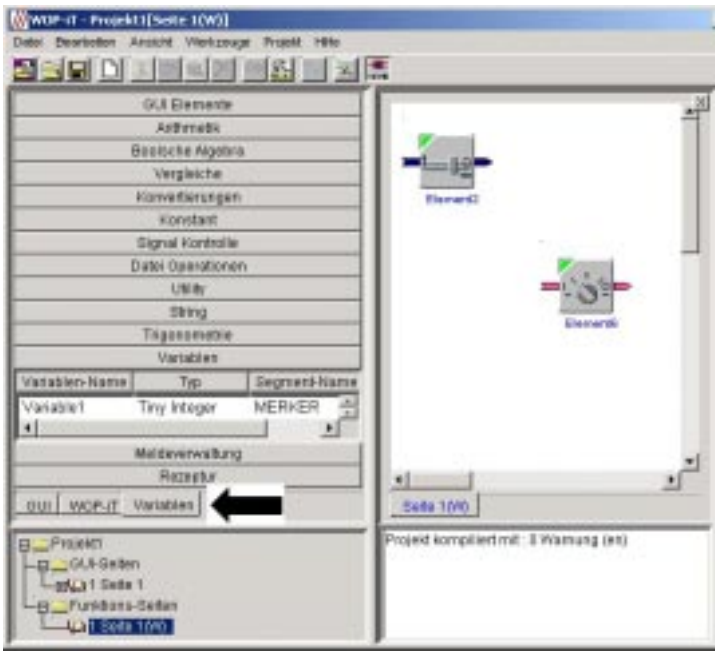
5 The First Project

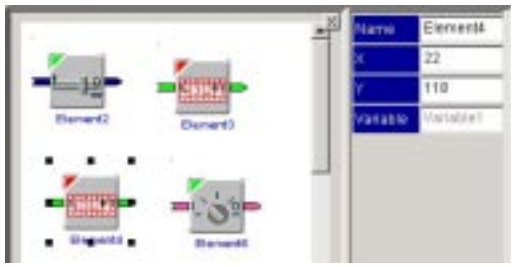
5.4 Adding Variables

A brief summary to begin with:
You have set up a page and positioned various GUI elements on this page. Following this an *MPI* driver, a PLC, a *FLAG* segment and a variable for the flag segment were created.
Now we want to establish a functional link between the GUI elements *Slider* and *Rotary Switch* via a variable. In concrete terms, this means that a value change for the *Slider* via *Variable1* should also be displayed and visualised for the *Rotary Switch*.

Switch to the function page for page 1 where you will see the 2 functional elements for the GUI elements *Slider* and *Rotary Switch*. Click the *Variables* tab, which now contains the *Variable1* you created:



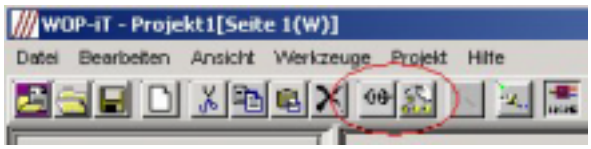
Select the entry of the variable with a left mouse click and then click inside the function page. Repeat this process and you will have two instances of variable 1 on your function page (You can also copy and paste the variables using [Ctrl C] → [Ctrl V]).



5 The First Project

5.5 Connecting Elements

! In general, there are two methods of linking elements to variables (refer to the next screenshot). Either by using method 1 by clicking *Connect* or method 2 by clicking the *Connection mode* button on the right-hand side.



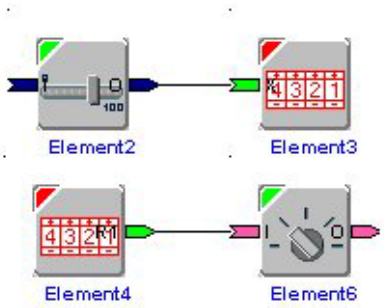
Method 1:

Click the slider element and then *Connect*. A dialogue box will open where you can select which element you want to connect your slider with.

Method 2:

Click *Connection mode* on the right-hand side. Keeping the left mouse button held down, you will now find it easy to connect the elements. (Keep mouse button pressed on the element output until a red circle appears, then pull to the input of the other element and hold it there until a red cross appears.)

Use method 1 or 2 to connect the slider with variable 1 and the copy of variable 1 with the rotary switch. Non-critical warning messages that appear relating to the various data types (e.g. the slider delivers the *long decimal* data type) should be confirmed with *Yes*, result:



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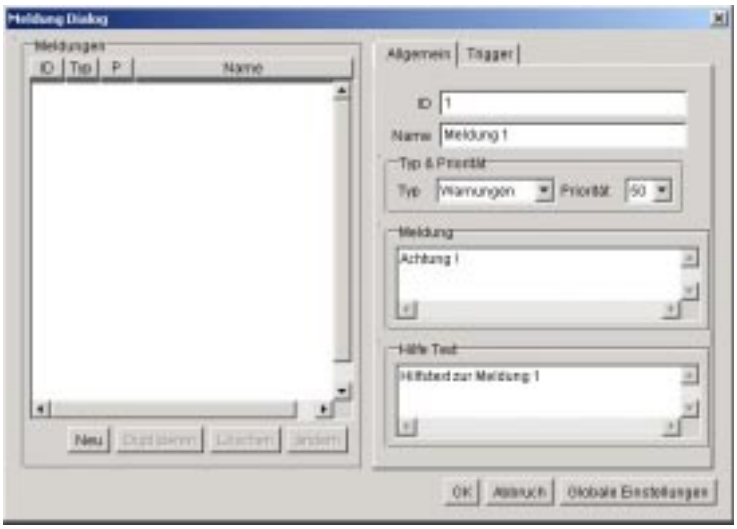
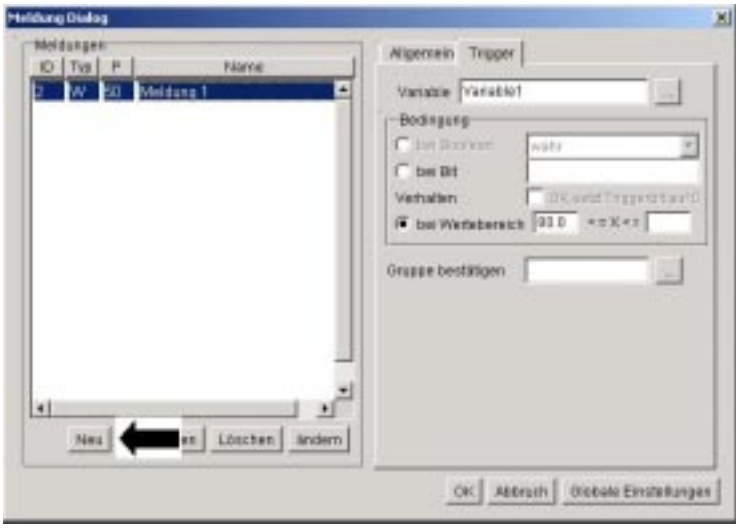
5 The First Project

5.6 Triggering Messages

Our project has been configured in such a way that a value change to the slider is indicated on the rotary switch. Now we want to configure it in such a way that a warning message is triggered when a particular value has been reached.
Change to *Project → Message Administration*.



Enter a message name, message text and – if desired – a help text for the message. Switch to the *Trigger* tab and select *variable1* as your trigger variable and enter, for instance, x>= 80 as your value range. Then click *New* on the bottom left-hand side:



This configuration will trigger a *Warning!* when the slider value >= 80.

5 The First Project

5.7 Simulating a Project on the Project Computer

Click *Project* → *Start simulation*
Confirm *Compile* with *Yes* and save you project under a name of your choice. The designer software will then automatically switch to simulation mode.
Now you can move the slider and you will see the modified values in realtime on the rotary switch.
You can trigger the message you have set up as of a value of 80. Switch to the message page and check the results.
Click *Log off* (=GUI element *Log Off User*) to end the simulation.

5.8 Project Simulation/Startup on the WOP-iT® Panel

To be able to couple your first project to a Siemens S7 or to simulate it, you first need to transfer the project to the Panel and start it by clicking the Start button. (More information on this topic can be found in Chapter 3 *Getting Started*)
Click *Log off* (=GUI element *Log Off User*) to end the coupling to your PLC.

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6 Technical data

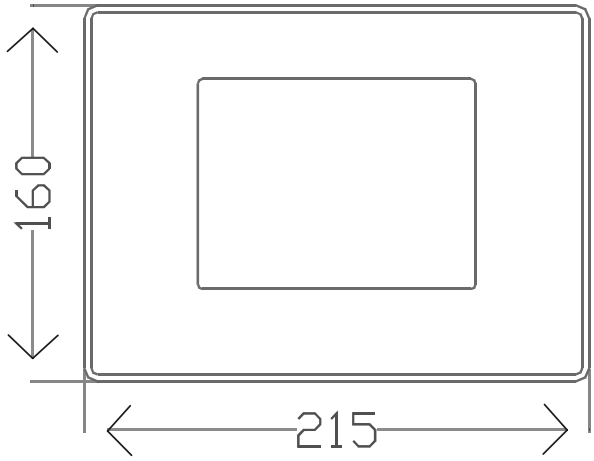
6.1 Mechanical Dimensions

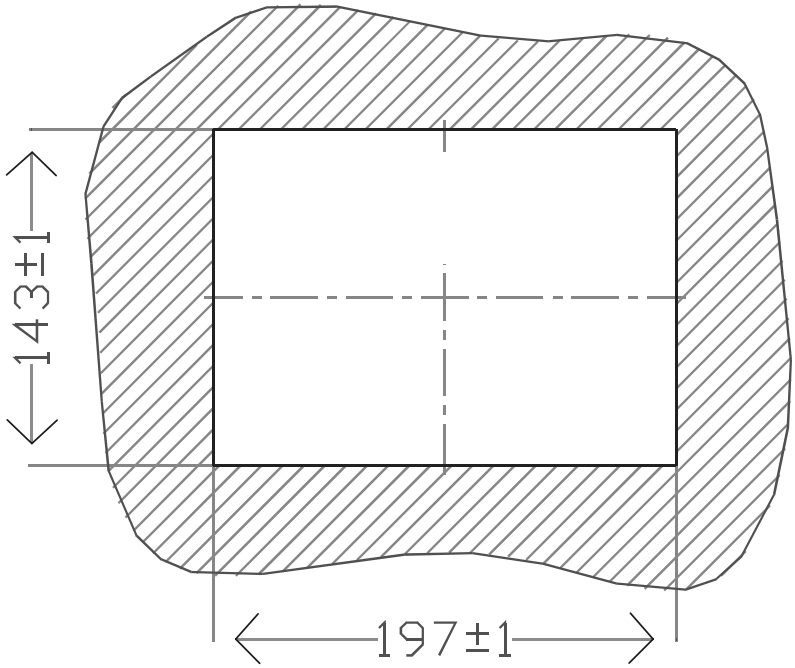
Ventilation area

To ensure the heat generated in the unit can be carried off into the environment, a ventilation area of 50 mm around the unit needs to be maintained.

6.1.1 WOP-iT® 570

Front plate	Width	215 mm
	Height	160 mm
Cut-out dimensions	Width	197 mm
	Height	143 mm
Installation depth	70 mm	
Weight	approx. 1 kg	

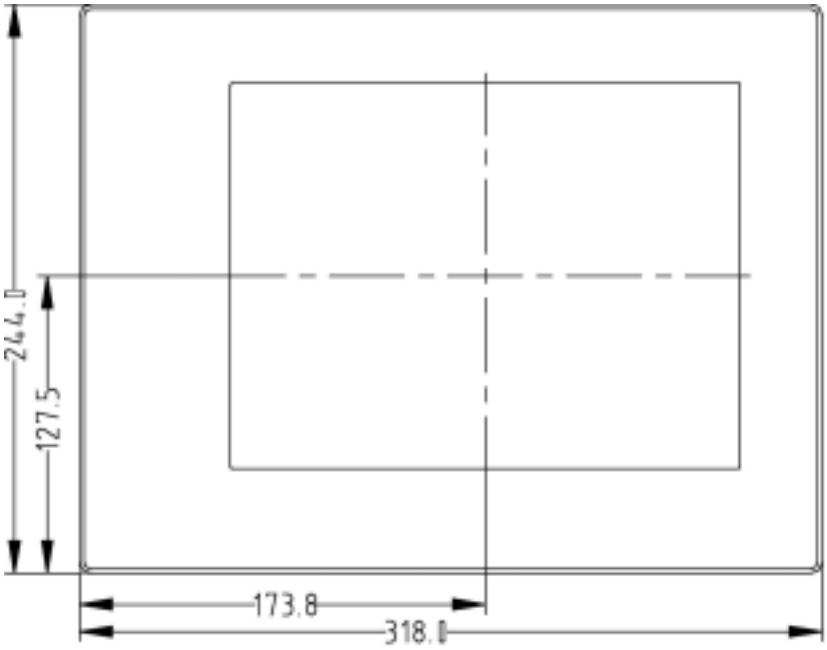


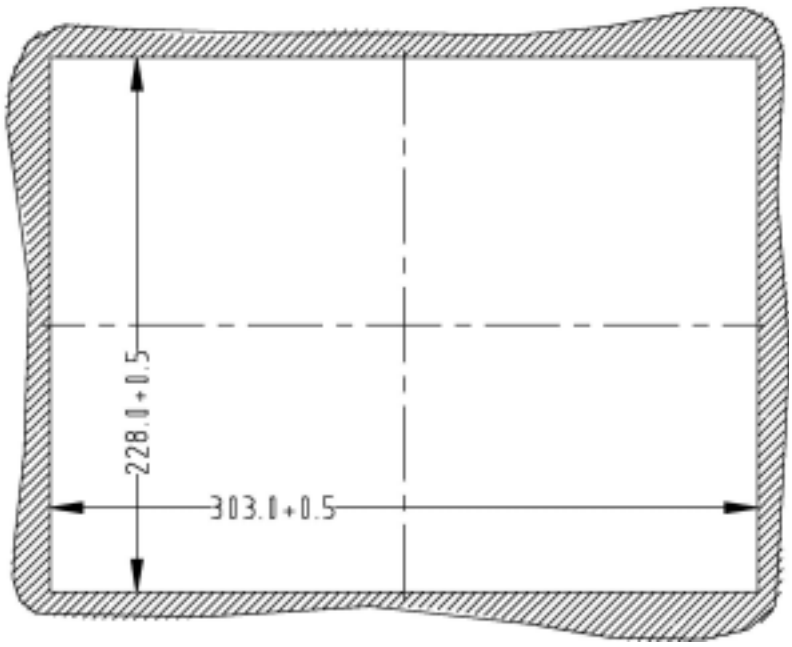


6 Technical Data

6.1.2 WOP-iT® 1000

Front plate	Width	318 mm
	Height	244 mm
Cut-out dimensions	Width	303 mm
	Height	228 mm
Installation depth	74 mm	
Weight	approx. 2.8 kg	





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6 Technical data

6.2 Electrical data

Power supply	Operating voltage	24 V ± 20%, polarity safe
	Current consumption	approx. 0.7 A
	Circuit breaker	2.5 A slow-blowing
	Bypass time	1 ms at 19.2 V (Ub-20%)
Display	10.4”	
	Dot-matrix display 640 x 480 Pixels	
	5.7" LCD	
	Dot-matrix display 320 x 240 Pixels	
	TFT technology, CFL background lighting	
	Operating temperature range	0 ... 45° C
Touch	Resistive touch with 8-wire technology	
Memory	**WOP-iT 570:**	
	Operating system	8 MByte Compact FLASH (internal)
	Main memory	32 MByte SDRAM, 32 Bit
	Registry	256 KByte SRAM, battery-buffered
	Cache	16 KByte Command cache (in the processor) 8 KByte data cache (in the processor)
	WOP-iT 1000:	
	Operating system	16 MByte Compact FLASH (internal)
	Main memory	32 MB (SDRAM, 64 Bit)
	Registry	256 KByte SRAM, battery-buffered
	Cache	512 KByte pipelined burst SRAM
Interfaces	Serial 1	Freely available debug/RS232
	Serial 2	Interface for communication module (MPI, Profibus, CAN, RS485, TTY etc.)
	Freely available parallel	printer port
	Ethernet	10/100 base-T twisted pair (RJ45)
	PS/2	

6 Technical Data

6.3 Ambient Conditions

Temperature range	Ambient temperature	Operation	0 ... 50° C
		Storage	-20 ... 60° C
Humidity	Operation	10 ... 75%, non-condensing	
	Storage	10 ... 95%, non-condensing	
Vibration and Shock resistance	Sine	2g, 10-500 Hz, 10 sweeps per axis	
	Noise	2g, 10-500 Hz, 2 hours per axis, $0.8g^2/Hz$	
	Shock	15g, 11 ms half-sine, positive and negative, 1 per axis	
	Permanent shock	10g, 16 ms half-sine, positive and negative, 1000 per axis	
	Free-fall	from a height of 1m (in packaging), 1 x per axis	
Protection type	Front	IP 65	
	Rear side	IP 20	
EMV/CE	Immunity standard for industrial environments		EN 61-000-6-2
	Radio disturbance characteristics		EN 55022

6.4 Interfaces

6.4.1 Compact FLASH slot

By default, the WOP-iT® Panel is equipped with a Compact FLASH slot according to the CFA standard (type 1). Presently, this type of memory is available with a storage capacity of between 8 MByte and 128 MByte.

Removing the Compact FLASH card

To remove the Compact FLASH card, open the locking lever and press the eject button.

Caution!
Only Compact FLASH cards from SANDISK can be used in connection with the WOP-iT(r) panel!

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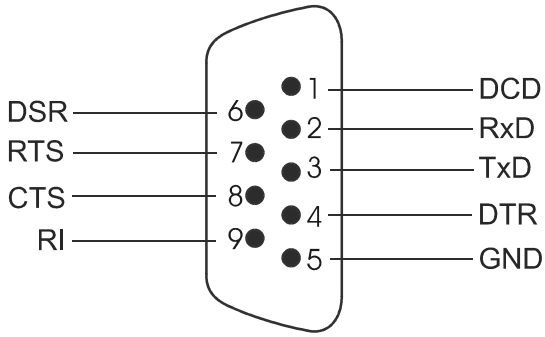
6 Technical data

6.4.2 COM 1 interface

⑦ COM 1

The serial interface has PC XT/AT standard allocation. It can be used to connect serial printers, and as a communication and configuration port.



6.4.3 Ethernet

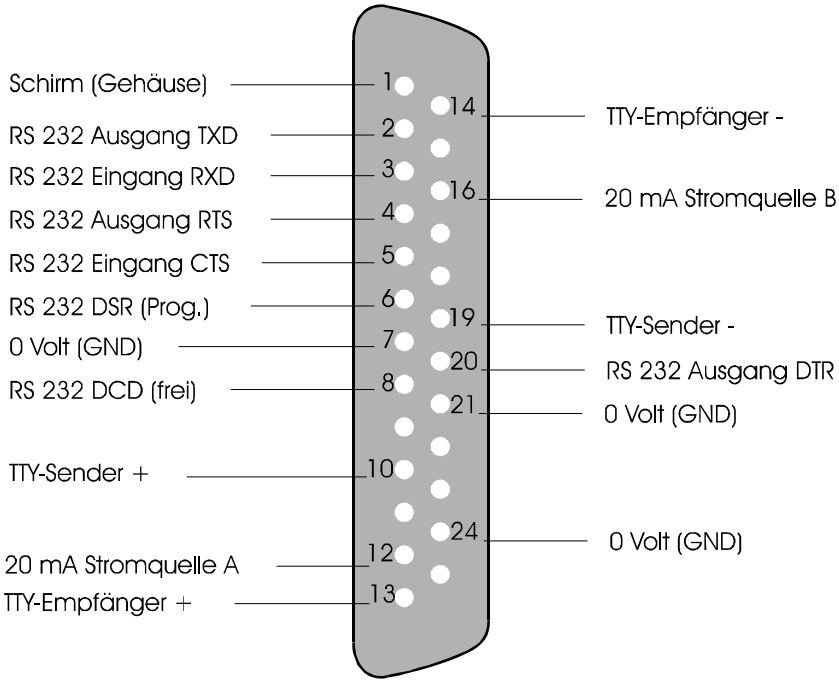
⑥ Ethernet port (RJ45)

The Ethernet interface allows a data transfer rate of 10 Mbit/s. Connection to an intranet takes place via a standard CAT5 network cable. To improve interference resistance, the use of double-shielded cables is recommended.

⑨ Power supply unit fuse

6.4.4 RS 232/TTY Bus module

The 25-pin SUB-D jack is free for use by the RS 232 TTY port with the following allocation:
(View from above the jack)



Caution!
TTY malfunction possible!
When using external power sources:
- Maximum open-circuit voltage: 15 V!
- Use a real power source with a maximum of 22 mA.

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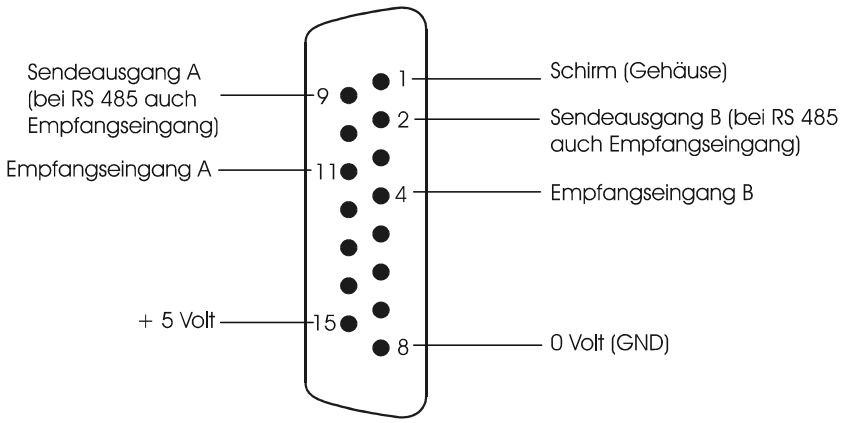
6.4.5 RS 485/RS 422 Bus Module

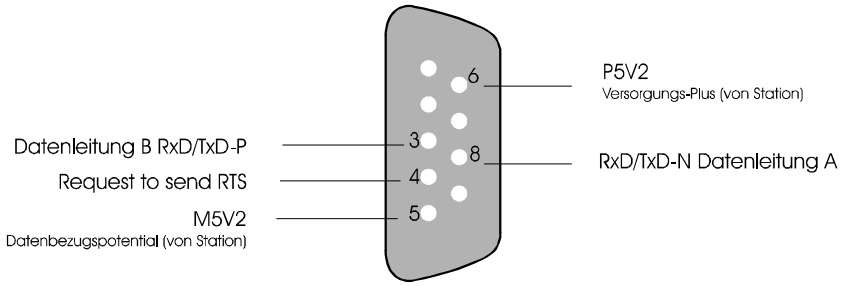
The 15-pin SUB-D plug is free for use by the RS 485 or RS 422 port with the following allocation:
(View from above the jack)



RS 422 communication uses pins 2 and 9 for sending and pins 4 and 11 for receiving.
RS 485 communication, in contrast, uses both pins 2 and 9 for sending and receiving!

6.4.6 MPI module

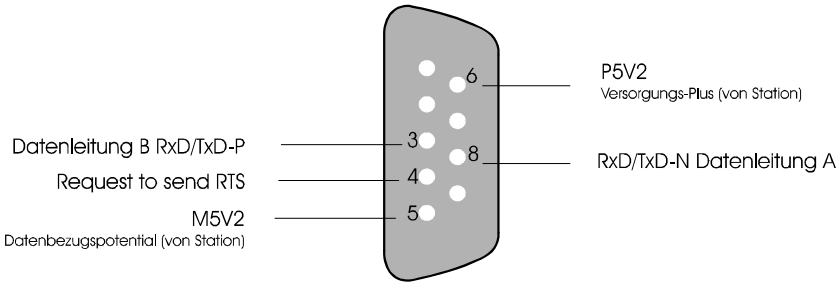
The MPI module is fitted with a 9-pin SUB-D jack.
It has the following allocation:
(View from above the jack)



6 Technical Data

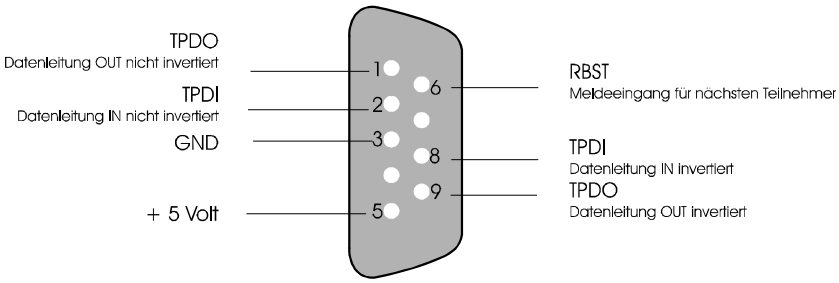
6.4.7 Profibus module

The Profibus DP module is fitted with a 9-pin SUB-D jack.
It has the following allocation:



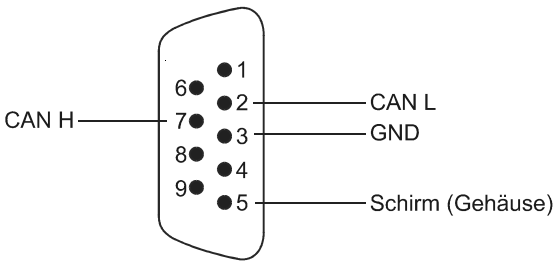
6.4.8 Interbus module (in preparation)

The Interbus-S module is fitted with a 9-pin SUB-D jack and a 9-pin SUB-D plug.
The jack is the port for the remotebus OUT connector, the plug is the port for the remotebus IN connector. Both have the following allocation:



6.4.9 Can Bus module (in preparation)

The CAN Bus module has a 9-pin Sub-D plug with the following allocation:



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